

CLAIMS

1. Device for measuring the quality and/or degradation of a fluid, particularly an oil, including:
a sensor comprising at least one pair of electrodes spaced apart from each other, to be immersed in the fluid to be measured, the electrodes and the fluid forming a
5 measuring capacitive element whose capacitance varies as a function of the dielectric constant of the fluid, said sensor being capable of providing an electrical output signal representative of said dielectric constant, and
processing means receiving said output signal and capable of determining the degree of quality and/or degradation of the fluid on the basis of said output signal,
10 characterised in that said electrodes extend in substantially the same plane and in that both sides of the electrodes are immersed in the fluid, on either side of said plane.
2. Measuring device according to claim 1, characterised in that the sensor further includes a reference capacitive element, comprising at least one pair of
15 reference electrodes spaced apart from one another, to be immersed in a reference fluid, the electrodes and the reference fluid forming a reference capacitive element whose capacitance varies as a function of the dielectric constant of the reference fluid, said reference capacitive element being capable of providing a reference signal representative of said reference dielectric constant to said processing means, and in that the processing means are arranged for comparing the output signal to the
20 reference signal.
3. Measuring device according to claim 2, characterised in that the electrodes of said reference capacitive element extend in substantially the same plane and in that both sides of the electrode are immersed in the fluid, on either side of said plane.
- 25 4. Measuring device according to claim 2 or 3, characterised in that the reference fluid is arranged in an enclosed space insulated from the fluid to be measured and in thermal contact with the latter, such that the reference fluid has substantially the same temperature as the fluid to be measured.
5. Measuring device according to claim 4, characterised in that the
30 enclosed space containing the reference fluid is associated with a system for renewing said reference fluid.
6. Measuring device according to claim 5, characterised in that said renewal system comprises a reference liquid tank in communication with said enclosed space and in that said system comprises flow control means so as to allow regular renewal
35 of the reference liquid contained in said enclosed space.

7. Measuring device according to any of the preceding claims, characterised in that the electrodes are respectively formed by flat plates.

8. Measuring device according to any of the preceding claims, characterised in that each electrode of each pair of electrodes has the shape of a
5 comb having a plurality of substantially parallel teeth, the teeth of one of the electrodes being interdigitated with the teeth of the other electrode.

9. Measuring device according to any of the preceding claims, characterised in that the capacitive elements are surrounded by a metal frame forming a screen against electromagnetic interference.

10 10. Measuring device according to any of the preceding claims, characterised in that the electrodes of the capacitive elements are made from a food grade steel.

11. Measuring device according to any of the preceding claims, characterised in that the electrodes of the capacitive elements are carried by an
15 electrically insulating support structure having an aperture opposite a measuring region of said electrodes.

12. Cooking apparatus including a vat for containing a cooking fluid and heating means characterised in that it further includes a measuring device according to any of claims 1 to 11, the measuring capacitive element being arranged in the vat
20 such that it is immersed in the cooking fluid.